

a soil organism which gains entrance through wounds and readily passes from the parent plant to the suckers. It spreads by diseased plants, infected soils, by farm implements, and on the clothing and boots of the laborers.—MEL. T. COOK.

Permeability.—STILES and JORGENSEN¹⁸ have measured the effect of temperature on the rate at which hydrogen ions of hydrochloric acid are absorbed by the tissue of potato tuber. Disks of potato tubers 1 cm. in diameter, weighing about 0.5 gm., were immersed in HCl of concentration 0.0011 N. This low concentration was used in order to avoid injury to the tissue. Experiments were carried out at temperatures of 0° C., 10° C., 20° C., and 30° C. At intervals up to 8 hours the quantity of the hydrogen ions absorbed was measured by determining the loss of hydrogen ions in the bathing solution. The hydrogen ion content of the latter was measured by a hydrogen electrode, a description of which the authors give.

The rate of absorption was increased by a rise of 10° C. as follows: from 0° to 10°, 2.22 times; from 10° to 20°, 2.17 times; from 20° to 30°, 2.18 times. This is in agreement with the Van't Hoff law for the effect of temperature upon the rate of chemical reaction, and the authors conclude that "the study of the effect of temperature on the absorption of the hydrogen ion would seem to indicate that the absorption is controlled by some chemical action in the cell, and is not the result of simple diffusion through the plasma membrane, or of mere absorption by the cell protoplasm." Their view is that the acid reacts with some substance in the potato, that this substance is either present in large quantity as compared with the amount of acid fixed, or that the resulting compound is broken down again almost as soon as formed. As to the identity of the substance that reacts with the acid, they state it is "presumably the plasma membrane, or some part of it." The reviewer is not convinced yet, however, that in their experiments they were dealing primarily with the permeability of the plasma membrane. The title of the paper expresses the situation more exactly.—F. E. DENNY.

The humidity of a ravine.—It has long been commonly accepted that both the atmospheric humidity is greater and the supply of soil moisture more abundant in a narrow ravine than upon the adjacent upland, but no quantitative data have been available to confirm these observations. To supply these deficiencies ULLRICH¹⁹ measured the evaporating power of the air at 15 different points in a clay ravine, and determined the range of soil moisture for a corresponding number of stations for a period of four months, from the beginning

¹⁸ STILES, WALTER, and JORGENSEN, INGVAR, Studies in permeability. II. The effect of temperature on the permeability of plant cells to the hydrogen ion. *Ann. Botany* 29:611-618. *figs. 4.* 1915.

¹⁹ ULLRICH, F. T., The relation of evaporation and soil moisture to plant succession in a ravine. *Bull. Ill. State Lab. Nat. Hist.* 12:1-16. *pl. 18.* 1915.